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ABSTRACT

Literature dealing with the economics of postsecondary education (but generally excluding university research), which was published in Canada or dealt with Canada, and which appeared in English language publications from 1971 to 1981, is reviewed. The following topics are addressed: resource allocation, and particularly returns to investment in higher education; productivity of educational institutions; alternative modes for financing institutions and students, together with the redistributive effects of these; some determinants of demand for places; and rationalization of the supply of places through educational and manpower planning. Resource allocation has been addressed from the cost side alone (without taking into account the value of output) through a wide range of studies, from individual institutions to the national university system. Alternative arrangements for financing higher education have received proportionately more attention than in the United States or the United Kingdom due to the continuing dilemma of federal responsibility for manpower, economic development, and regional equity and the provincial responsibility for education. Much of the current research effort is at the institutional and provincial level, with emphasis on the flow of persons through the system. This includes the development of numerous forecasting models to predict enrollments according to program of faculty, institution, and province. Another recent research innovation has been an analysis of the economic impact of educational institutions on their geographic communities. Much current research activities tends to be descriptive. A bibliography is appended. (SW)

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Economics of Higher Education:

Publications in English in Canada, 1971 to 1981

Paper for presentation to the
annual meeting of the Canadian Society
for the Study of Higher Education

June, 1981

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ECONOMICS OF HIGHER EDUCATION:

PUBLICATIONS IN ENGLISH IN CANADA, 1971 TO 1981

Introduction

This paper attempts to include work which was published, in English, since January 1971, dealing with the economics of post-secondary education (but generally excluding university research) and which was done in or about Canada or was published in Canada. Definitions of "research" and "economics" are not so easily stated. The bibliography which is the focus of this paper includes items ranging from political tracts to theoretical dissertations. The former were included only if they seemed to have a substantial influence on research activity. "Economics" has been defined as "whatever economists do".[1] Papers or reports by persons generally regarded as economists have been included, but so have papers from other disciplines if the work concerned resource allocation, financing, or the related labour markets.

Some items will have been missed that ought to have been included. For this I apologize to the readers, and especially to the omitted authors. Several items that have been included will be questioned, but this implicitly indicates the paucity of bona fide research since a strict criterion of research would have resulted in a very short list.

A thorough search of the literature was not possible; indeed it is not clear what the boundaries might be. I have reviewed the AUCC Inventory of Research into Higher Education, the published and draft Bibliographies of Higher Education in Canada by Robin Harris and his colleagues, the Canadian Journal of Economics, Canadian Journal of Higher Education, Journal of Canadian Studies, Canadian Tax Journal, Canadian Public Policy, and Higher Education.[2] Also included are several reports prepared for royal commissions, task forces, and other government departments and agencies.

The Decline in Research Activity and Publications

The first and major impression from this review of the decade is clear: most of the work was done at the beginning of the decade. (The bibliography would have been somewhat longer had 1970 been included.) Much of the work published in 1971 to 1973 had been initiated in 1968 to 1970. There has been a minor rekindling of interest in some topics in the 1978 to 1980 period, but these seem to be isolated efforts or by-products of other work.

Second, one observes a major shortfall between reported research activity and the published results.[3] This occurs partly because the research is undertaken for or by a government department with limited distribution of the work and when the findings are of limited interest or relevance. In fact, virtually all work in this area has been directly sponsored by governments or agencies, but in the earlier years there was a predominance of councils, commissions, and taskforces interested in having their studies made widely available to the public. This work also led to a number of journal articles.

There also were several doctoral dissertations in the late 1960s and early 1970s which were the impetus for articles and further work, but recently there have been fewer dissertations and subsequent research and publications.

Why was there so much more research activity early in the decade? There seem to be a number of related reasons. Education had been identified by Edward Denison in the early 1960s as the major source of economic growth; T. W. Schultz incorporated this in the notion of education as an investment good, or as a form of human capital; and Gary Becker produced a theory of human capital.[4]

The pioneering work by Denison, Schultz, and Becker resulted in numerous Ph.D. dissertations in this area as graduate students and their

supervisors recognized the need to test and refine the theoretical framework. Here the focus was directly on post-secondary education as almost the sole variable. Since then, the human capital model has at least lost the glow of its novelty and has been challenged by several authors who argue that the economic contribution of education is overestimated.[5] Education now tends to be treated as only one among several explanatory variables in a more general theory of income distribution.[6]

The original theoretical research coincided with the rapid expansion and diversification of the post-secondary system in the mid-1960s. Governments were looking for rationalization of their planning and spending in post-secondary education and consequently were willing to support related empirical research. Then the inevitable occurred. The supply of highly qualified manpower had increased more rapidly than did demand in the late 1960s. Since wages and salaries do not adjust very quickly to such major market disturbances, new graduates discovered they could not obtain the kind of employment they expected, or at the expected salary level.

Governments were disappointed and perhaps embarrassed with the economic analysis that had just so recently provided a rationale for expansion. There was also at this time a sharp increase in public support for health services and housing, followed by the energy crisis and rapid inflation, and then wage and price controls. Higher education was pushed far down on the public agenda and was severely squeezed in the public budget.

These events occurred more or less simultaneously in all advanced economies, but in Canada there was an important additional factor. The approaching federal-provincial negotiations for a 1972 revision of the Fiscal

Arrangements Act (by which the federal government transferred funds to the provinces for post-secondary education) stimulated much of the research in 1970 and 1971. The Council of (Provincial) Ministers of Education sponsored several studies[7] while the Economic Council of Canada undertook similar studies indirectly on behalf of the federal government.[8]

From 1951 to 1967, the federal government had contributed directly to the financing of universities (outside Quebec) through the Canadian Universities Foundation. The federal contribution was increased substantially in 1966 and then was set in 1967 at 50 per cent of the operating costs by a revision of the Federal-Provincial Fiscal Arrangements Act. By 1970 the federal government was seeking a method to constrain its contribution and the provinces were anxious to maintain both the federal revenue and provincial autonomy in education. The basic provisions of the 1967 Act were extended (with a limit on annual increases in the federal contribution) with a consequent decline of interest in further research on alternatives for or implications of educational financing.

Reasons for the decline in interest and output can be easily summarized: health and energy became more important public issues, government policy emphasis shifted from social services to supporting private sector improvements, the federal government's financial support for post-secondary became so indirect that there seemed to be little reason to sponsor related research, and - partly as result and partly by coincidence - academic researchers moved to other countries, other organizations, or other research interests.

What Was Researched?

The topics addressed by researchers in Canada were the same as those treated elsewhere: resource allocation, and particularly returns to investment in higher education; productivity of educational institutions; alternative modes for financing institutions and students, together with the redistributive effects of these; some determinants of demand for places; and rationalization of the supply of places through educational and manpower planning.

Economic returns to post-secondary education in Canada were calculated (including work prior to 1971) by Drummond, Podoluk, Wilkinson, Dodge, Stager, Mehmet, the Systems Research Group and the Economic Council of Canada.[9] Mehmet up-dated his calculations using 1972 data and Holmes later estimated the returns to education based on 1967 earnings data from the StatsCan Consumer Finance Survey. The rates of return were generally found to be higher than for either the United States or Great Britain, but one needs to be cautious in offering and testing hypotheses for these differences. Comay et al showed the effect of individuals' risk aversion and failure rates on private rates of return. The most recent work in this area, by Welland, has been directed to refining the relationship between schooling and earnings.

Resources allocation has also been addressed from the cost side alone (without taking the value of output into account) through a wide range of studies, from individual institutions to the national university system. Hettich's 1971 analysis of the productivity of Canadian universities for 1956 to 1968 shows the trend in real costs of university output measured as degrees and diplomas. Other cost studies - especially for provincial systems - were compared by P.-P. Proulx early in the decade when so many such studies

were undertaken. The relative costs of alternative structures were also estimated, as in the report by Woods Gordon and Co. on a potential year-round operation of universities. Most institutions have developed planning models, but few have been published; the model recently reported by Griew is an exception. Similarly, the Smith and Choudhry analysis of faculty salaries and productivity is an example of work that ought to have appeared earlier and more frequently.

The economic studies of demand for education have overlapped with sociological investigations of "accessibility" which are reported elsewhere. Crean's dissertation showed the importance of foregone earnings - a major component of educational costs - in determining the demand for education, while Schaasfma's dissertation examined the effect on demand (or enrolment) of several socio-economic variables as reported in the 1961 census. Handa and Skolnick reviewed a number of American and Canadian reports on demand - emphasizing the estimated elasticity coefficients for price (or tuition fee) and family income. Prokash related his study of demand to the inter-governmental arrangements for financing post-secondary education.

Dodge and Swan reported a survey of Queen's University students which showed considerable differences among students in the accuracy of the information on which their educational decisions were based. Meltz's historical series on degrees granted, by field of study, shows how the composition of demand for university education has changed in the postwar period.

Much less effort was directed to research on the redistributive effects of educational finance, despite the emphasis on income redistribution in the 1960s. The interprovincial redistributive effects of the 1967 fiscal

transfers arrangement were reported both by Stager and by the Economic Council staff. More recently, interpersonal redistribution was analyzed by Crean, Mehmet, and Buttrick.

Alternative arrangements for financing higher education have received proportionately more attention than in the United States or the United Kingdom due to the continuing dilemma of federal responsibility for manpower, economic development, and regional equity and the provincial responsibility for education. Graham and Cameron have carefully documented the implications of the 1967-1977 fiscal arrangements including equalization payments while Leslie and Davenport have examined the more recent Established Programs Finance. Very little attention has been directed to alternative tuition fee policies - with the exception of Crowley's argument for free tuition - but an important paper on fee levels and differentials by Scott and Rosenbluth is to be published soon. Variations on student loans and grants have appeared frequently, particularly in the reports of provincial commissions. Cook and Stager published the simulated results of an income-contingent loan repayment scheme and West evaluated the Canada Student Loan Plan and its alternatives.

The relationship between education and manpower planning is open to many alternative approaches and models. Some of the difficulties and shortcomings have been described by Sewell, Skolnick, Holland, Stager and Meltz, and others, but fundamental analysis has been lacking. Various surveys of graduates - for example, by Harvey and by Statistics Canada - have recorded the occupational destination of these graduates but the models required for analysis and policy still lack either the demand or supply side of the market. The Ministry of State for Science and Technology and the Technical Manpower Council have used the Economic Council's CANDIDE model to generate demand

estimates, but there are no complementary supply equations which take relative salaries into account. Von Zur-Muehlen has produced several papers - especially on doctoral graduates and on graduates of business programs - presenting data on the numbers and characteristics of persons involved but almost no analytical work has been done on these and other data available from Statistics Canada. The richest data set of this kind was the 1973 survey of Highly Qualified Manpower based on the 1971 census respondents who had a university degree. Although Ahamad et al did preliminary analytical work on this data set, it has not been properly exploited.

Current Work

Currently, much of the research effort is at the institutional and provincial level, with emphasis on the flow of persons through the system. This includes the development of numerous forecasting models to predict enrolments according to program of faculty, institution, and province. With the dip in post-secondary enrolments in 1972 and the financial squeeze on institutions, educational administrators recognized the inadequacy of their enrolment forecasts. It also became necessary to survey the employment experience of their graduates - both to counteract the popular notion of high unemployment among graduates and to increase the data for enrolment forecasts on the (correct) assumption that prospective students monitored the graduates' labour market.

Another recent research innovation has been an analysis of the economic impact of educational institutions on their geographical communities (for example, the universities of Calgary, Manitoba, and Victoria). Institutions have also continued to develop their micro-planning capability using

computer-based models of resource allocation within faculties and other divisions of a university. In general, however, current research activities tend to be more descriptive, and less analytical than the work done a decade ago, or to repeat the earlier work with a localized data set.

Looking Forward

Even a modest menu for research efforts in the next decade would include several topics. But first, we need to find a method for making survey data and empirical analyses more widely known and more readily available. This would include especially the work of provincial government agencies, task forces, university planning offices, and institutional and faculty organizations. An inexpensive newsletter produced by the "cut-paste-xerox-staple" method, edited by a research assistant, for a self-financing mailing list at $5.00 annually would suffice. This would not replace the AUCC Research Inventory or Selected Bibliography or reports in the AUCC and CAUT bulletins; rather, it would provide prompt, regular, exceedingly brief reports on current publications.

The CJHE editorial board might also consider (perhaps it has frequently done so) including several short notes on recent reports and annotated listings of articles published in other journals. While financial support for the CJHE depends on how well it functions as a scholarly journal publishing refereed articles of high quality, its contribution to its research community could be enhanced by these addenda.

The important research topics for the 1980s arise both from questions generated by earlier research and from the new circumstances and problems requiring rational policy responses. For some of the unanswered and important

questions in the economics of higher education, it is useful to refer to a review of human capital theory by Mark Blaug (who has been a major contributor to this field).[10] Blaug notes two related areas where the published research falls short: the demand for education, and the contribution of education to earnings differentials. These both are basic to an understanding of how and why employers use schooling credentials in hiring, promotion, and remuneration.

On the matter of demand for education, Blaug notes that

> ...it is surprising how little attention has actually been devoted to an explanation of the private demand for schooling....even now [1976] the demand for education remains a curiously neglected subject in the vast empirical literature exemplifying the human-capital approach.[11]

The private demand for education as an investment good is a primary component of manpower forecasting models:

> ...the problem of developing a satisfactory model of the American labor market for engineers, not to mention the demand for engineering as a field of study, remains unresolved.[12]
>
> When we consider that the private demand for formal schooling is, as it were, at the center of the human-capital research program, the results to date begin to raise doubts as to whether the program is indeed 'progressing'.[13]

On the matter of schooling as a determinant of earnings differentials, Blaug states bluntly:

> After ten years of work on earnings functions, all we have is a dim light at the end of a tunnel: ....the fact remains that no one has so far succeeded in specifying and testing the simultaneous demand and supply equations that generate the earnings function, without which empirical work on earnings function amounts to little more than trying to walk on one leg.[14]

An important development of the past decade was the hypothesis that schooling added little to one's cognitive skills. Rather, it served as a sorting or screening mechanism to identify persons who were most able to acquire

the cognitive skills provided by employers. This screening or credentialism hypothesis is also described succinctly by Blaug:

> The employer is...faced with a selection problem: given the difficulties of accurately predicting the future performance of job applicants, he is tempted to treat educational qualifications as a screening device to distinguish new workers in terms of ability, achievement, motivation, and possibly family origins...." The contribution of education to economic growth, therefore, is simply that of providing a selection device for employers, and the way is now open to consider the question of whether formal schooling is indeed the most efficient selection mechanism that we could design for that purpose.[15]

One of Blaug's concluding comments is a simple, powerful challenge to interdisciplinary research in higher education: "...the question is not whether schooling explains earnings, but rather why it does."[16]

By now, it should be clear that my emphasis for proposed future directions of research in the economics of higher education is on the link between education and earnings. Questions of alternative arrangements for organizing instruction, and for financing the costs of higher education are important, but the research in these areas has run far ahead of political understanding. Researchers have made their basic contributions. Apart from occasional efforts to explain the alternatives and their implications more clearly, there is little to be done until the debate moves to more sophisticated levels. There is still so much to be done, however, in fundamental research on the acquisition and substitutability of skills, on the determinants of employment income, and the linkages between these factors and private, individual career decisions, public policy decisions on provision of post-secondary places, and the development of alternative training and/or screening mechanisms. These basic issues are not likely to attract the interest of government departments, agencies, task forces, and commissions. Consequently, progress -

especially in the Canadian context - on research in these areas can be expected to be slow, erratic, and responsive primarily to international advances in this field.

Notes

1. This quotation is part of economists' folk-lore - usually attributed to Jacob Viner - but with no apparent source.

2. This is not a Canadian journal but is the journal devoted to higher education in which economists are most likely to seek publication.

3. Compare the research reported in the AUCC Inventory for any year with the published work.

4. See Edward F. Denison, The Sources of Economic Growth in the U.S. and the Alternatives Before Us, New York: Committee for Economic Development, 1962; T. W. Schultz, "Investment in Human Capital," American Economic Review, March 1961

5. See, for example, Taubman and Wales (ability for schooling)

6. See, for example, Jacob Mincer,

7. See items in the Bibliography by Graham and Cameron, Downey, Peitchinis, Tu, Stager, and Sheehan. (Proulx was published in French.)

8. See the Eighth Annual Review (1972) of the Economic Council of Canada; also papers in the collection edited by Sylvia Ostry (1972), as director of the Economic Council.

9. A summary of these studies is in Stager's paper on resource allocation in Sylvia Ostry (ed.), Canadian Higher Education in the Seventies.

10. Mark Blaug, "Human Capital Theory: A Slightly-Jaundiced Survey," Journal of Economic Literature, 1976.

11. Ibid., p. 831.

12. Ibid., p. 836.

13. Ibid.,

14. Ibid., p. 845.

15. Ibid., p. 846.

16. Ibid., p. 848.

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